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J. ISAAC ET AL

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ATTACHING MEANS FOR MASKING STRIPS

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FIG. 1.

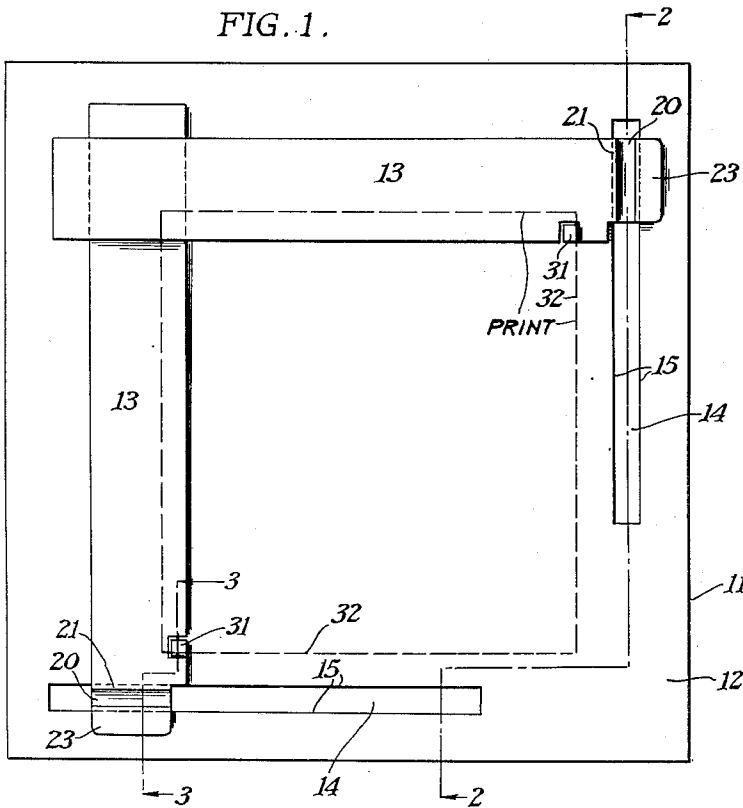


FIG. 2.

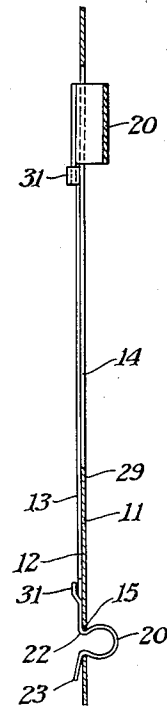


FIG. 4.

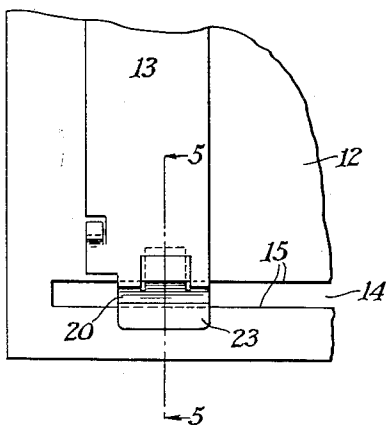


FIG. 5.

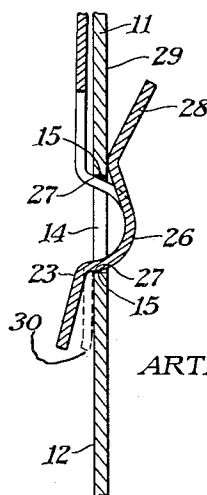
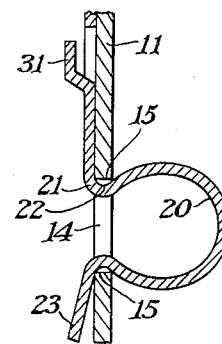


FIG. 3.



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ATTACHING MEANS FOR MASKING STRIPS

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12 Claims. (Cl. 88—24)

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The present invention relates to a photographic printing apparatus, and more particularly to an arrangement for mounting masking strips therefor.

One object of the invention is the provision of a novel and simple arrangement for connecting the masking strip detachably on the printing plate or surface.

Still another object of the invention is the provision of a detachable connection which affords means to guide and/or align the strip relative to the printing surface.

A further object of the invention is the provision of such a connection which effectively positions the strip in a definite angular relation to the slot of the printing plate.

Yet another object of the invention is the provision of a detachable connection which is simple, inexpensive to manufacture, easy to manipulate and highly effective in use.

To these and other ends, the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Fig. 1 is a plan view of a printing plate or surface, showing the relation thereto of masking strips constructed in accordance with the present invention;

Fig. 2 is a view through the apparatus shown in Fig. 1 and taken substantially on line 2—2 thereof, showing the arrangement of the strip attaching means;

Fig. 3 is a partial sectional view through the printing plate and the masking strips, and on a larger scale than Figs. 1 and 2, showing the arrangement by which the strips are positioned and connected detachably to the plate;

Fig. 4 is a plan view of a portion of the printing plate showing the relation thereto of a modified connecting means for the masking strip; and

Fig. 5 is a partial sectional view through the plate and strip and on a larger scale than Fig. 4, showing the arrangement for connecting the modified strip to the plate.

Similar reference numerals throughout the various views indicate the same parts.

The drawings show a printing plate 11, the upper surface 12 of which has slidably positioned thereon a pair of normally arranged flat masking strips 13 formed from a suitable strip material, such as thin metal. In contact printing, the strips 13 are adapted to hold and position both a negative and a sensitized paper, while in projection printing the strip holds only the sensi-

tized paper, as will be readily understood by those in the art. As the printer itself may be of any standard or well known construction, only the printing plate 11 with which the masking strips 13 cooperate, is illustrated. The plate 11 is formed with a pair of normally arranged slots 14 having straight parallel edges 15.

In the embodiment shown in Figs. 1 to 3, each strip 13 is formed with a depending bowed section 20 of substantially cylindrical shape, as best shown in Fig. 3. This bowed section extends completely through the slot and depends below the plate 11 and has a narrow throat or neck portion 21 which has a normal width greater than the width across the slot 14 between the sides 15. By "normal width" is meant the width across the portion 21 when the strip 13 is detached from the plate 11. When, however, the strip is attached to the plate, the bowed section 20 is pushed through the slot 14 as will be apparent from an inspection of Fig. 3, and such insertion of the section 20 through the slot will cause the neck portion 21 to be bowed or flexed inwardly to a width equal to or slightly less than the slot 14. When, however, the section 20 has been passed through the slot to the position shown in Fig. 3, the section will tend to flex outwardly, due to its resiliency, to bring the neck portion 21 into frictional engaging relation with the edges 15 of the slot 14 to connect the strip 13 detachably to the plate 11. It will be noted from Fig. 1 that the portion 21 has a substantial length along the slot 14 so that the edges 22 of the portion 21 engage the edges 15 of the slot over a substantial length and cooperate therewith to provide an accurate guide for the strip as the latter moves along surface 11. Also, the cooperating edges 15 and 22 serve to align the portion 21 with the slot to maintain the strip 13 in a definite angular relation, to the length of the slot, in the present instance 90°.

In contact and in some forms of projection printing, the print and/or paper are positioned on the upper surface 12 of the plate 11. With this arrangement, it is preferred to provide means to facilitate the sliding of the strips over the surface 12. To secure this result, the end of the strip adjacent to section 20 is bent up, as shown at 23, to provide a short handle or moving portion which may be grasped by the operator to move the strip, as is deemed apparent. Thus, the strips may be moved by the handles 23 to position the strips in any desired relation on the surface 12. During such movement, the edges 15 and 22 cooperate to guide the strip and the flexible portion 21 then serves to hold the strip yieldably

and resiliently in a definite position and in an angular relation to the slot 14. While the bowed section with its narrow neck 21 yieldably holds the strip in any desired position, it offers a means by which the strip may be readily and easily connected to or detached from the plate 11, as is apparent.

Figs. 4 and 5 show a modified connecting means for the strip 13, parts corresponding to those in Figs. 1 to 3 being designated by the same numerals. In this modified structure, each strip 13 is provided with a bowed portion 25 which is much shallower than the bowed portion 20. As will be apparent from an inspection of Fig. 5, the section 25 has a width greater than the slot 14 so that when the section is pressed into the slot it will be deflected inwardly so as to bring the sides 27 thereof into frictional engagement with the sides or edges 15 of the slot 14 to guide the section 25 in the slot 14. Thus, like the structure shown in Fig. 3, the bowed section 25 co-operates with the slot 14 to connect the strip detachably to the plate and to guide the strips in the slot to retain the proper angular relation of the strips relative to the slot.

As the section 25 is drawn shallower than section 20, additional means is desirable to insure positive positioning of the section 25 in the slot 14. To secure this result, the strip has formed therefrom, adjacent to section 25, a bent-out lug 23 which extends below and engages the under surface 29 of the plate 11 and cooperates with the bowed section 25 to connect the strip detachably to the plate and in a definite angular relation to the slot 14.

When the masking strips 13 are positioned on the upper surface of the plate, the handles 23 afford a simple and easy means for moving and positioning the strips. Resilient engagement of the bowed sections with the edges 15 of the slot 14 serves to retain the strip in any adjusted position on the plate 11. In some kinds of projection printing, the printing paper is positioned below a platen which holds the paper on a printing easel. With such an arrangement, the strips 13 will be positioned on the under side of the platen. The result is that the bowed sections 20 and 25 will then project above the plate or platen. With such an arrangement, the bowed sections may be used directly as a handle or moving means for moving and positioning the strips relative to the platen. In such an arrangement the handle portions 23 will be bent down into the plane of the strips 13, as indicated in dotted lines at 30 in Fig. 5. Thus either the bent-up handles 23 or the bowed sections 20 or 25 may be used to move the strips 13 on the plate 11.

In the embodiments illustrated, the axes of the bowed portions are normal to the strips 13 so that the latter will be maintained normal to the length of the slot 14, as is apparent. However, in some special cases it may be desirable to provide a masking strip which will be positioned at an angle other than normal to the slot. To secure this result it is merely necessary to form the axis of the bowed sections 20 or 25 in such a way that the axis thereof will be at the desired angle to the strip so that when the bowed sections are placed in the slot the strips will be maintained at the desired angle relative thereto. The particular position of the strips will depend of course on the angular relation of the bowed section relative thereto.

The strips, in usual practice, are normally arranged so as to provide normally arranged mar-

gins on the print. The strips 13 are provided, in the preferred arrangement, with means for engaging normally arranged edges of the print, as shown in Fig. 1, to position the print in a definite relation to the masking strip. The drawings show one form of a print engaging means comprising lugs 31 struck up from the strip 13 and adapted to engaged edges 32 of the print. Thus, the lugs 31 properly and accurately position the print relative to the masking strip.

The present invention thus provides a new and simple means for connecting the masking strips detachably to the printing plate, to accurately guide the strip during its movement on the plate, to yieldably retain the strip in any position of adjustment, and to align the strip in a definite angular relation with the slot.

While certain embodiments of the invention have been disclosed, it is to be understood that the inventive idea may be carried out in a number of ways. This application is, therefore, not to be limited to the precise details disclosed, but is intended to cover all variations and modifications thereof falling within the scope of the appended claims.

We claim:

1. In a photographic printing apparatus, the combination with a printing surface formed with a slot, of a masking strip slidably positioned on said surface, and a bowed resilient section formed on said strip and extending through said slot, said section having a portion of minimum width which prior to insertion in said slot is greater than the normal width of said slot so that said portion when positioned in said slot will engage the edges of said slot yieldably to connect said strip detachably to said apparatus and to position said strip in a definite angular relation to said slot.

2. In a photographic printing apparatus, the combination with a printing surface formed with a slot, of a masking strip slidably positioned on said surface, a depending bowed section formed on said strip and extending through said slot, said section having a narrow portion which prior to insertion in said slot is of a width greater than said slot so that the insertion therein will flex said section to cause said portion to engage the edges of said slot yieldably to connect said strip detachably in said slot and in a definite angular relation relative thereto, and gripping means on said strip for moving the latter on said surface.

3. In a photographic printing apparatus, the combination with a printing surface formed with a straight slot therein of one width, of a flat masking strip slidably positioned on said surface, and a depending flexible bowed portion formed from the material of said strip and adapted to be inserted in said slot and having a narrow section of a normal width greater than said slot so that when said portion is inserted in said slot said portion will be bowed inwardly to cause said section to engage the edges of said slot yieldably to detachably connect said strip on said apparatus and to guide said strip during movement over said surface.

4. In a photographic printing apparatus, the combination with a printing surface, formed with a straight slot therein of one width, of a flat masking strip slidably positioned on said surface, a depending flexible bowed portion formed from the material of said strip and adapted to be inserted in said slot and having a narrow section of a normal width greater than said slot so that when said portion is inserted in said slot said

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portion will be bowed inwardly to cause said section to engage the edges of said slot yieldably to detachably connect said strip on said apparatus and to guide said strip during movement over said surface, and handle means formed on said strip for moving the latter over said surface.

5. In a photographic printing apparatus, the combination with a thin printing surface formed with a straight slot of one width, of a flat masking strip positioned on said surface for sliding movement thereover, a depending bowed section formed from said strip, said section having a depth greater than the thickness of said surface so that when positioned in said slot said section will extend below said surface, and a narrow portion formed on said section, said portion having a normal width greater than said slot so that when said section is passed through said portion will be flexed inwardly to engage the edges of said slot yieldably to connect said strip detachably to said surface and to guide said strip during movement thereover and to retain said strip in a definite angular relation to said slot.

6. In a photographic printing apparatus, the combination with a thin printing surface formed with a straight slot of one width, of a flat masking strip positioned on said surface for sliding movement thereover, a depending bowed section formed from said strip, said section having a depth greater than the thickness of said surface so that when positioned in said slot said section will extend below said surface, a narrow portion formed on said section, said portion having a normal width greater than said slot so that when said section is passed through said portion will be flexed inwardly to engage the edges of said slot yieldably to connect said strip detachably to said surface and to guide said strip during movement thereover and to retain said strip in a definite angular relation to said slot, and a handle formed on said strip for moving the latter on said surface.

7. In a photographic printing apparatus, the combination with a printing surface formed with a slot, of a masking strip slidably positioned on said surface, a bowed section formed on said strip and extending through said slot, said section having a portion of minimum width which is normally greater than the width of said slot so that said portion will engage the edges of said slot yieldably to connect said strip detachably to said apparatus and to position said strip in a definite angular relation to said slot, and print positioning means carried by said strip.

8. In a photographic printing apparatus, the combination with a printing surface formed with a slot, of a masking strip slidably positioned on said surface, a bowed section formed on said strip and extending through said slot, said section having a portion of minimum width which is normally greater than the width of said slot so that said portion will engage the edges of said slot yieldably to connect said strip detachably to said apparatus and to position said strip in a definite angular relation to said slot, and print positioning means carried by said strip, a lug formed on said strip and adapted to engage an edge of a print positioned on said surface to position the print.

9. In a photographic printing apparatus, the combination with a printing surface formed with a pair of normally arranged slots, of a pair of normally arranged masking strips positioned on said surface for sliding movement thereover, each

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of said strips being formed with a bowed section adapted to extend through said slot, a narrow neck portion on said section of a normal width greater than said slots so that when said sections are inserted in said slots said portions will be flexed inwardly and into yielding engagement with the sides of the slots to connect said strip slidably and detachably to said apparatus and in normal relation to said slots, a handle formed on each strip to move the latter on said surface, and means on said strips for engaging edges of a print to position the latter on said surface relative to said strips.

10. In a photographic printing apparatus, the combination with a printing plate formed with a straight slot adjacent an edge thereof, of a masking strip positioned for sliding movement over one surface of said plate, a bowed section formed on said strip and of a depth greater than said plate and extending through said slot, said section having a normal width which prior to insertion in said slot is greater than said slot so that when positioned therein said section will be bowed inwardly to a smaller width to engage the sides of said slot yieldably, and a lug bent out of said strip adjacent said section and engaging the opposite surface of said plate and cooperating with said section to connect said strip slidably and detachably to said plate and in a definite angular relation to said slot.

11. In a photographic printing apparatus, the combination with a printing plate formed with a straight slot adjacent an edge thereof, a masking strip positioned for sliding movement over one surface of said plate, a bowed section formed from the material of said strip and of a depth greater than said plate and extending through said slot, said section having a normal width greater than said slot so that when positioned therein said section will be bowed inwardly to a smaller width to engage the sides of said slot yieldably, a lug bent out of said strip adjacent said section and engaging the opposite surface of said plate and cooperating with said section to connect said strip slidably and detachably to said plate and in a definite angular relation to said slot, and a handle formed from the material of said strip to facilitate the sliding thereof over said one surface.

12. In a photographic printing apparatus, the combination with a printing surface formed with a slot, of a masking strip slidably positioned on said surface, a bowed section formed from said strip and positioned out of the plane thereof and extending through said slot, said section having a portion substantially in the plane of said strip and adapted to be positioned in said slot to guide said strip for movement on said surface, said portion before positioning in said slot having a normal width greater than that of said slot so that when positioned therein will flex to engage yieldably the sides of said slot to connect the strip detachably in said slot and to maintain said strip in a definite angular relation thereto.

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